DOCUMENT RESUME

ED 075 883 CS 500 258

AUTHOR King, Corwin P.
TITLE Imagery and Information Processing: Some Implications for Therapeutic Communication.
PUB DATE Apr 73
NOTE 14p.; Paper presented at the Annual Meeting of the International Communication Assn. (Montreal, Canada, April 25-28, 1973)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Anxiety; *Behavior; Behavior Theories; Communication (Thought Transfer); Hypnosis; *Imagery; *Imagination; Information Theory; Nonverbal Communication; *Psychology; Psychotherapy; *Therapy; Thought Processes; Verbal Communication

ABSTRACT

This study of the human power to make mental images in the mind, here called "imagery," is studied as a phenomena of empirical psychology. The findings have importance for the process of communication, especially in behavioral modification through psychotherapy. Current research in imagery is reviewed, along with possible applications to therapeutic situations. The viewing of imagined phenomena through the "mind's eye" may occur as remembrances, daydreams, or fantasizing and have the qualities of pictured dreams or even hallucinations. Imagery is used for memory aids, for example, although it seems to function on a nonverbal level. Study of imagery can lead to psychotherapeutic ends in the clinical treatment of disturbed persons. (CH)

FILMED FROM BEST AVAILABLE COPY

ED 075883

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

IMAGERY AND INFORMATION PROCESSING: SOME IMPLICATIONS FOR THERAPEUTIC COMMUNICATION

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY
Corwin P. King
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER

by

Corwin P. King
Division of Humanistic Studies - Communication
University of Wisconsin-Parkside
Kenosha, Wisconsin 53140

International Communication Association
Montreal, Quebec, Canada
April 25-28, 1973

CS 500 258

The study of imagery is among the oldest and the newest subjects in the history of psychology. It is old in the sense that it has been recognized and thought about since before the time of Aristotle, and that it was one of the first phenomena to be empirically examined as a faculty of the human mind (Galton, 1883). At the same time, however, it is new in the sense that after some thirty years of "ostracism" from psychological literature, it is only within the past decade that it has "returned" as an object of serious scientific inquiry (Holt, 1964).

Fortunately, the involved and rather complex reasons for this need not concern us here, except to point out that the revival of interest in imagery reflects a willingness among psychologists to discuss aspects of human behavior which were once considered too "subjective," too "mentalistic" for investigation. For our purposes, it is perhaps sufficient to observe that imagery is again "respectable" in psychology, and that recent research on the topic has yielded a number of significant findings on the nature of human information processing. As Richardson (1969) has indicated, these findings have important implications for the process of communication, particularly in the context of behavioral modification through psychotherapy. Thus, it is the intent of this paper to present a brief review of the current status of imagery research along with its possible applications to therapeutic situations. Additionally, we shall attempt to suggest some directions for future research on imagery as both a theoretical and a practical consideration in therapeutically-oriented communication.

Imagery: A Functional Definition and Description

Simply defined, imagery refers "to sensory-like experiencing which occurs in the absence of appropriate sensory stimulation" (Hunter, 1964:184). While often regarded as a visual phenomenon, as the viewing of mental "pictures" through the fabled "mind's eye," it can properly appear through any sense modality or even through a combination of modalities. In some form and to some extent it seems to be an almost universal human capacity, unrelated to social, cultural, or demographic factors and present in all racial and ethnic groups (Doob, 1972). It is commonly believed to occur more often in children than in adults, yet the difference appears to be relative rather than absolute. McKellar (1972), for example, reports a survey of 500 adults in which over 90% gave instances of visual and auditory imagery, and over 50% gave instances of motor (kinesthetic), tactile, gustatory, olfactory, and pain (algesic) imagery.

Because of its wide occurrence, a critical issue in the study of imagery has long been the question of why it occurs, or of what function it serves in the everyday life of an individual. Traditionally, it has been argued that at least some types of imagery may have survival value for an individual in the sense of alerting him to the existence of potentially dangerous environmental stimuli (Doob, 1972). This seems especially true in the case of positive after-imagery, as when one is temporarily blinded by an intense flash of light and continues to "see" the light for a few seconds thereafter. In a somewhat related manner, it has been argued that other types of imagery such as illusions or

hallucinations may serve as a means of gratifying basic psychophysiological needs for an individual. Horowitz (1967), for example, describes a hypothetical state of "infantile hallucination" in which an infant driven by hunger may momentarily reduce this need by imagining the pleasurable sensations associated with a previous instance of feeding. Later, perhaps as a form of wish-fulfillment or escape, such habits may emerge again under conditions of dreaming, daydreaming, or fantasizing, wherein an individual "pictures" himself in a certain situation and "rehearses" what he would say or do there, manipulating details of his behavior in order to achieve the most favorable results.

Among modern theorists, however, probably the most generally acknowledged function of imagery is to act as a vehicle for coding information in the processes of thinking, reasoning, and remembering. Through the ancient art of mnemonics, or artificial systems for memory improvement, the role of imagery in memory has been well-established for centuries (Yates, 1966). It is known that the ability to visualize material is a powerful aid to retaining and recalling it, and that training in visualization can usually increase retention and recall (Delin, 1968; Persensky and Senter, 1970). Similarly, imagery's role in thinking and reasoning, especially among young children, is well-established (Church, 1961; Bruner, 1966), and it is known to be an asset to certain kinds of thinking or reasoning tasks. Richardson (1969) suggests that it may be of value in certain forms of problem-solving, and it is likely that persons who deal with complex spatial relationships (e.g., architects, surgeons, and artists) may find it useful if not essential to their work.

Significantly, in the contexts of both thinking and reasoning and remembering imagery has typically been viewed as the counterpart of language. And herein lies a second critical issue in the study of imagery, namely its relationship to language. As a rule, the fact that it occurs so frequently in children has led most authors to conclude that imagery represents a sort of "preverbal" mode of coding information, serving about the same purpose for a child through "pictures" that words do for an adult (Church, 1961; Vygotsky, 1962; Bruner, 1966). An important corollary of this view is that it also represents a less sophisticated mode of coding, one which normally gives way to verbal coding as a child grows older and matures. Actually, there is some question as to how distinct imagery is from verbal coding, for understood as a method of "symbolizing" information it would seem that imagery is not without some semantic content (Paivio, 1970). As Doob (1972) has written, moreover, the question of whether imagery is preverbal can never be definitely answered for the simple reason that verbalized self-reports are often needed to determine its existence. Nevertheless, there are some indications that when compared to language imagery does represent a more elementary form of coding.

The first, although not necessarily the most convincing of these is that the capacity for imagery seems to bear no positive relationship to general intelligence. On the contrary, many of the most striking examples of imagery are found among the mentally retarded (Siipola and Hayden, 1965), or among those whose patterns of thinking and reasoning are otherwise "abnormal" (Luria, 1968). The use of imagery seems to be

a central component in the performance of so-called "idiot savants," for example, as evidenced in skills such as rote memorization, the playing of musical instruments by ear, or the execution of difficult arithmetical calculations. Commenting upon the reason for these skills, Horwitz et. al. (1965) imply that imagery may act as a compensatory mechanism, allowing an individual of limited mentality to deal with information by casting it into (simpler) forms which he can manage.

A second, more persuasive indication is that imagery is by nature highly concrete and specific, and therefore limited in applicability. It is easier, for instance, to imagine a specific face, voice, or object than an intangible argument, decision, or logical proposition. Seemingly, the quasi-sensory, quasi-perceptual character of imagery tends to focus an individual upon the superficial, "visible" properties of material to the exclusion of its "non-visible," symbolic properties. In addition, imagery tends to be heavily field dependent, relying upon the situational or tangibly patterned context in which material was originally experienced. The result, says Bruner (1966), is a kind of thinking and remembering that is often exquisite in detail but extremely inflexible; in which it is difficult for an individual to discriminate between essential and trivial features in a body of material or to abbreviate or alter material in the sense that a part can be "abstracted out" and reported separately from the material as a whole. Furthermore, it is a type of thinking and remembering that seems to slight the underlying ideational aspect of material, and this may account for the curious fact that there appears to be no automatic correlation between a

person's capacity for imaging information and his capacity for comprehending or interpreting it (Horwitz et al., 1965; Luria, 1968).

Finally, a third indication is that imagery is highly vulnerable to the influence of affect. Customarily, the fidelity of one's imaging is strongly influenced by his interests, with those features in a body of material which are most important to him "seen" very clearly while the less important features are "seen" very faintly - or perhaps not at all (Hunter, 1964). Along with this, a person's imaging may also include a variety of qualitative distortions like changes in the position or character of certain features in his image or even the addition of features which were lacking in the original stimulus situation. Significantly, perhaps as a consequence of imagery's role in wish-fullfillment, these distortions are usually in line with his framework of expectations and desires, so that his imaging reflects as much of what he wants to "see" as of what he actually does (or did) "see." As a result, imagery seems to reflect a rather autistic (Bruner, 1966; McKellar, 1972), idiosyncratic method of coding information, frequently showing a lack of reality testing and a corresponding limitation in accuracy.

To summarize, then, on the basis of these arguments most modern authors have concluded that the use of imagery probably represents a primitive stage in the normal cognitive growth of the human organism, and that it tends to decline with age. The reason, quite simply, is presumed to be that as a child grows older, as the depth and breadth of his experiencing expands, imagery ceases to serve any very useful purpose for him (Hunter, 1964). With increasing maturity, his adjustments

to the concrete, "sensory" aspects of his environment presumably become more firmly established, and he turns from the conquest of the tangible world to the conquest of the intangible world of abstract ideas and logical relationships. Here, the greater flexibility and versatility of language presumably holds sway, and imagery diminishes in value. To be sure, most authors are quick to emphasize that the use of imagery does not disappear, as indicated by the large number of adults who still retain some capacity for it. Yet the prevailing assumption is that when imagery persists into adulthood it probably serves as an adjunct to language, providing an individual with a supplementary mode of coding information.

Imagery and Language: An Alternate View

The effect of this position, of course, is to classify imagery as a kind of second-rate form of information processing, largely confined to children, mental retardates, and perhaps an artist or two. Recently, however, some investigators have taken exception to this idea, arguing that the traditional view of imagery as being generally inferior to language is overstated. Ranken (1963) has shown that for certain types of information imagery may actually be superior to language, and Paivio (1970, 1971) has claimed that it might better be regarded as co-equal to language but designed for a different "kind" of information processing. Specifically, both authors maintain that imagery is particularly useful for processing spatially-oriented material, for coding such things as the figural properties of shapes or geometrical designs,

while language is particularly useful for processing sequentially-oriented material. The possibility, they say, that imagery may serve as an adjunct to language, that a person may verbalize the properties of material and then create an image of them, does not seem universally valid, as there are some situations (e.g., with figural-spatial material) where verbalization appears to hinder rather than help one's thinking and remembering. Thus, as Paivio (1970:391) remarks, "imagery appears to be a useful mode of learning and remembering at all ages, its functional role probably being determined by the nature of the learning task. . . ." Rather than interpreting it as an inevitable supplement to language, he continues, we might also consider the fact that language may sometimes serve as a supplement to imagery.

As other authors (e.g., Richardson, 1969) have written, this hypothesis has a number of provocative extensions, the most intriguing of which is the notion that for some individuals imagery may act as the predominant mode of coding information - even into adulthood. While such an idea is hardly new, going back at least as far as Bartlett's (1932) distinction between "habitual visualizers" and "habitual verbalizers," what is fairly new is the recognition of its implications for the process of communication. Richardson (1969), for instance, cites some preliminary data to support the conclusion that differing "modes of thought" between people (i.e., verbal versus nonverbal) can constitute a barrier to effective interpersonal communication. The difficulty, he explains, is that persons habitually given to "visualizing" information are often more idiosyncratic in their thinking than persons

habitually given to verbalizing information, because the connotative meaning of language is socially established while the connotative meaning of imagery is not. Thus:

> Habitual verbalizers use words for interpersonal communication and also, on occasion, use words in the form of inner speech for their own self-conscious intrapersonal communications. Under these conditions minimal distortion of meaning is likely to occur. For the habitual visualizer on the other hand, words are just as necessary for interpersonal communication, but for purposes of intrapersonal communication, translation from a verbal to a visual mode of representation and back again is also necessary. Under these conditions there is a greater opportunity for idiosyncratic meanings to be created. (p. 84)

The result, says Richardson, is that the exchange of information between visualizers and verbalizers is often imprecise, reflecting differences in the <u>form</u>, as it were, as well as the <u>content</u> of information processing. To the extent, therefore, that imagery represents a viable <u>alternative</u> to language in information processing, it is reasonable to assume that it may be a potent factor in determining communicative effects, and in explaining the frequent <u>variations</u> in effects among different individuals to the "same" message cues.

<u>Some Implications for Therapeutic Communication</u>

In view of the above, it is also reasonable to assume that imagery may be a factor in determining <u>therapeutically-oriented</u> communicative effects. And indeed, within the past few years imagery's role in various therapeutic techniques has received an increasing amount of attention. It appears, for example, that a crucial procedural factor in the use of behavioral or "desensitization" therapy (Wolpe and Lazarus,

1966) is a patient's ability to "picture" a fearful situation clearly and vividly enough to provoke anxiety (Lazarus, 1964). Thus, Davis, McLemore, and London (1970) have found that a partially positive correlation exists between vividness of imagery and patient improvement under desensitization, although the two are not related in any simple way. Seemingly, they suggest, when a fearful object or situation is imagined subjects with vivid visual imagery exhibit greater anxiety than subjects with less vivid visual imagery, but when a fearful object is actually seen subjects with less vivid imagery exhibit greater anxiety than subjects with more vivid imagery.

In another context, there is also some evidence that imagery is important in the process of hypnotherapy, particularly in determining susceptibility to hypnosis. Sutcliffe, Perry, and Sheehan (1970) have discovered that hypnotizable subjects invariably have a capacity for vivid imagery and that unhypnotizable subjects typically have a weaker capacity for imagery. They conclude, however, that vividness of imagery is a necessary but not <u>sufficient</u> condition of hypnotizability, for the simple if puzzling reason that not all subjects with vivid imagery are hypnotizable. Finally, it appears that imagery may be important to the process of role-playing, and to its more advanced equivalents psychodrama and sociodrama. As Richardson (1969) observes, in fact, an interesting question here is the degree to which successful role-playing may rely upon some minimal capacity to "image" a role beforehand, or to "see" and "feel" oneself playing it.

Underlying all of these illustrations, of course, is the basic

proposition that imagery can somehow assist the process of therapy by serving as a catalyst for behavioral change. We might speculate, therefore, that knowing of an individual's capacity for imagery, and especially knowing the extent to which it constitutes his primary mode of coding information, would be useful in determining his response to certain therapeutic techniques. At present, unfortunately, the "measurement" of imaging capacity is still rather inexact, although excellent work has been done by Sheehan (1967) and Gordon (see Richardson, 1969). These sources might logically be taken as a starting-point for the development of better, more powerful instruments, which eventually might lead to a reliable method of "screening" individuals for the purpose of selecting those who are most amenable to a particular therapeutic approach.

In any event, there is reason to believe that the phenomenon of imagery is a potentially critical variable in therapeutic transactions, one which is certainly deserving of further study. For those of us in the field of communication, it offers a fascinating mixture of questions and answers, most of which have gone virtually ignored up till now. Among them, possibly the most essential is the insight it gives to the fundamental issue of why communication succeeds - and why it fails. For centuries communication scholars have known that what information is received determines a person's response to it. It now appears, however, that how information is received is equally important.

REFERENCES

Barker, L.L., et al. "Hypnosis and the Reduction of Speech Anxiety," Central States Speech Journal, 1972, 23, 28-35.

Bartlett, F.C. Remembering: A Study in Experimental and Social Psychology. Cambridge: Cambridge University Press, 1932.

Bruner, J.S. "On Cognitive Growth: I," Studies in Cognitive Growth, J.S. Bruner et al. (eds.) New York: John Wiley and Sons, Inc., 1966, 1-29.

Church, J. Language and the Discovery of Reality. New York: Vintage Books, 1961.

Davis, D., McLemore, C.W., and London, P. "The Role of Visual Imagery in Desensitization," Behaviour Research and Therapy, 1970, 8, 11-13.

Delin, P.S. "Success in Recall as a Function of Success in Implementation of Mnemonic Instructions," Psychonomic Science, 1968, 12, 153-154.

Doob, L.W. "The Ubiquitous Appearance of Images," The Function and Nature of Imagery, P.W. Sheehan (ed.) New York: Academic Press, 1972, 311-332.

Galton, F. Inquiries into Human Faculty and its Development (originally published in 1883). New York: E.P. Dutton and Co., 1908.

Holt, R.R. "Imagery: The Return of the Ostracized," American Psychologist, 1964, 19, 254-264.

Horowitz, M.J. "Visual Imagery and Cognitive Organization," American Journal of Psychiatry, 1967, 123, 938-946.

Horwitz, W.A., et al. "Identical Twin - 'Idiot Savants' - Calendar Calculators," American Journal of Psychiatry, 1965, 121, 1075-1079.

Hovland, C.I., and Janis, I.L. Personality and Persuasibility. New Haven, Conn.: Yale University Press, 1959.

Hunter, I.M.L. Memory. rev. ed.; Baltimore: Penguin Books, 1964.

Lazarus, A.A. "Crucial Procedural Factors in Desensitization Therapy," Behaviour Research and Therapy, 1964, 2, 65-70.

Luria, A.R. The Mind of a Mnemonist. New York: Basic Books, 1968.

McKellar, P. "Imagery from the Standpoint of Introspection," The Function and Nature of Imagery, P.W. Sheehan (ed.) New York: Academic Press, 1972, 35-62.

Paivio, A. "On the Functional Significance of Imagery," Psychological Bulletin, 1970, 73, 385-392.

Paivio, A. "Imagery and Language," Imagery: Current Cognitive Approaches, S.J. Segal (ed.) New York: Academic Press, 1971, 7-32.

Persensky, J.J., and Senter, R.J. "The Effect of Subjects' Conforming to Mnemonic Instructions," Journal of Psychology, 1970, 73, 15-20.

Ranken, H.B. "Language and Thinking: Positive and Negative Effects of Naming," Science, 1963, 141, 48050.

Richardson, A. Mental Imagery. New York: Springer Publishing Co., 1969.

Sheehan, P.W. "A Shortened Form of Betts' Questionnaire upon Mental Imagery," Journal of Clinical Psychology, 1967, 23, 386-389.

Siipola, E.M., and Hayden, S.D. "Exploring Eidetic Imagery among the Retarded," Perceptual and Motor Skills, 1965, 21, 275-286.

Sutcliffe, J.P., Perry, C.W., and Sheehan, P.W. "Relation of Some Aspects of Imagery and Fantasy to Hypnotic Susceptibility," Journal of Abnormal Psychology, 1970, 76, 279-287.

Vygotsky, L.S. Thought and Language, Eugenia Hanfmann and G. Vakar (trans.) Cambridge, Mass.: M.I.T. Press, 1962.

Wolpe, J., and Lazarus, A.A. Behavior Therapy Techniques. New York: Pergamon Press, 1966.

Yates, F.A. The Art of Memory. London: Routledge and Kegan Paul, 1966.